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Earnings Management in Domestic and Foreign IPOs in the United States: Do Home Country Institutions Matter?

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Abstract

Using a large sample of domestic and foreign IPOs in the US, we investigate how threats of enforcement by the Security and Exchange Commission (SEC) and private litigation influence earnings management in IPO prospectuses. We propose that perceptions of foreign institutions may influence SEC enforcement action and private litigation. We provide evidence that enforcement and litigation threats are negatively related to the strength of legal institutions in the foreign IPO's country of origin. We find earnings management is more pronounced in foreign IPOs from countries with *strong* legal institutions. We further explore whether earnings management is priced in the IPO market and find no relation between IPO proceeds and earnings management. Our results are consistent with upward earnings management as in Stein (1989), the magnitude of which is reduced when anticipated cost of enforcement and litigation is higher. Collectively, our results cast doubt as to the validity of the bonding hypothesis.

Keywords: Foreign IPOs; bonding; perceptions of foreign institutions, SEC enforcement;

abnormal accruals;

JEL classification: G18; M41; M43; M44

Earnings Management in Domestic and Foreign IPOs in the United States: Do Home Country Institutions Matter?

1. Introduction

Earnings management has attracted significant attention, as managers can use earnings to opportunistically influence various corporate outcomes such as security prices, debt contracts, and personal compensation. Research has mostly focused on corporate governance mechanisms that could mitigate the adverse effects associated with opportunistic earnings management, but with ambiguous results (Larcker, Richardson, & Tuna, 2007). However, the incidence and magnitude of earnings management is not only a function of firm-specific corporate governance mechanisms, it also reflects a firm's exposure to external forces such as investor protection, enforcement risk, private litigation, and investor beliefs.

Securities laws offer a varying degree of investor protection across countries (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2002). This variety has been linked to differences in the extent of earnings management at the country-level, with the extent of earnings management being higher in institutional environments with weaker investor protection (Bushman and Piotroski, 2006; Bushman, Piotroski, & Smith, 2004; Leuz, Nanda, & Wysocki, 2003). Moreover, the "bonding" hypothesis (Coffee, 1999; Stulz, 1999) posits that foreign firms can circumvent the effects of a weak corporate governance regime in their home countries through a commitment to better governance mechanism by listing in countries with stronger legal institutions, such as the US. Arguably, bonding works insofar as it is backed by a credible threat of enforcement and litigation. However, bonding is less likely to work where foreign firms do not anticipate close scrutiny with associated adverse consequences. As we subsequently explain, it is plausible such threats are shaped by perceptions of the legal institutions of the foreign firm's country of origin. These perceptions are particularly salient in the US IPO market, because foreign IPOs are relatively

unknown entities when entering US capital markets. In this paper we therefore examine the relation between earnings management in foreign IPOs and home institutions.

Prior research has not investigated if foreign IPOs manage earnings at a similar level as domestic US IPOs, as the bonding hypothesis suggests. Most studies investigating the bonding hypothesis use samples comprised primarily of cross-listed firms (i.e., firms with listings in both their home country and in the US) and report mixed results.[1] However, the strength of bonding in cross-listed firms may differ substantially from that of IPOs for several reasons. First, cross-listed firms are typically more mature and, as such firms have been listed in the US for several years, they are better known to US investors. Being relatively unknown, IPO managers can exploit their information advantage by managing earnings more aggressively than mature firms. Second, cross-listed firms need to satisfy several sets of national securities regulations, which may compromise bonding to US rules. Third, while the IPO market may present stronger incentives to manipulate earnings than in the secondary market (Teoh, Welch, & Wong, 1998), it is also characterized by a higher level of investor and regulatory scrutiny (Ball and Shivakumar, 2008; Ndubizu, 2007). However, prior literature has not examined if, and how, such scrutiny is equally applied to IPOs regardless of their country of origin.

Earnings management may vary in IPOs according to country of origin even though they exclusively list in the US. First, if the IPO's main activities remain located in its home country, a broad range of contracts are still likely governed by relevant laws in the home country (e.g., compensation, CEO dismissals, borrowing and entering liquidation procedures). Extant research shows that such contracts may motivate earnings management.[2] Second, perceptions by US investors and government officials likely play an important role. These parties may be suspicious

[1] See Karolyi (2012) for a review of the evidence on the bonding hypothesis.
[2] Our paper, however, does not provide evidence pertaining to the importance of contracting in an IPO's home country.

of foreign firms - and foreign IPOs in particular - because of lack of familiarity (Merton, 1987), and owing to perceptions of institutional and cultural distance.[3] We argue scrutiny of IPOs is explained by the SEC's vulnerability to adverse political consequences of accounting irregularities (Bushman and Piotroski, 2006). This vulnerability is likely more pronounced in the case of US domestic IPOs that are primarily owned by US investors. Among foreign IPOs, the SEC is more likely to take disciplinary actions against, and investors may be more inclined to sue, IPOs they perceive to have poor corporate governance based on country of origin (Gu, Filatotchev, Bell, & Rasheed, 2018). Expecting this, foreign IPOs from countries with weak institutions would manage earnings to a lesser extent than IPOs originating from countries with strong institutions.

In our first set of analysis, we provide evidence supporting the conjecture that SEC enforcement and private litigation are directed relatively more at firms originating from countries with weak institutions. We then present evidence that earnings management is inversely related to the enforcement and litigation threats. In the second set of analysis we explore the relation between home country institutions and earnings management. We find foreign IPOs from countries with strong institutions inflate earnings more than both domestic US IPOs and other foreign IPOs.

Our final analysis examines the pricing implications of earnings management. Because IPO firms raise cash, it is possible the objective of earnings management is to inflate earnings to increase proceeds (Teoh, et al., 1998; Teoh and Wong, 2002). This suggests a positive relation between earnings management and IPO proceeds. On the other hand, Shivakumar (2000), building on Stein (1989), argues that, since investors expect earnings management, the best response managers can adopt is to increase earnings. In equilibrium, managers are "trapped" into managing

[3] We elaborate on the role of perceptions in Section 2.3.

earnings upward, but investors rationally discount earnings management. Consistent with this, we find no relation between earnings management and IPO proceeds.

We contribute to the IPO literature in five ways. First, Lang, Raedy, & Wilson (2006) explore earnings quality in mature foreign firms listed in the US and find evidence suggestive of poorer earnings quality in cross-listed firms from countries with weak institutions. We show in the IPO market earnings management is more pronounced in IPOs from countries with *strong* institutions. Second, our results are relevant for assessing the strength of the bonding theory. Our evidence stands in contrast to the conclusions of several prior papers arguing that bonding works. Moreover, we provide evidence consistent with a link between SEC enforcement, or private litigation, and home institutions. This link is indicative of the role of perceptions when information asymmetry is high. Third, we add further evidence on how the SEC prioritizes its limited resources (e.g., Correia, 2014; Kedia and Rajgopal, 2011) and extend this line of research to the IPO market. Fourth, our evidence further supports the notion that reputational concerns may generate bonding (Siegel, 2005). In particular, IPOs from weak institutions countries use less-aggressive accounting, as would be expected from a motivation to build reputational capital. Finally, we extend Sivakumar's (2000) results obtained for seasoned equity offerings to the foreign IPO market by showing that earnings management is not priced.

2. Related Literature and Hypotheses Development

2.1 IPO Earnings Management

Earnings management may be difficult to detect in IPOs because new firms are less known to market participants. Teoh and Wong (2002) provide evidence that analysts are insufficiently skeptical about IPO accruals management, whereas this is not the case for mature firms. This lack of familiarity may be more pronounced for foreign IPOs owing to the distance of their main

operations from capital markets and US investors (Coval and Moskowitz, 1999; Malloy, 2005) and, more generally, owing to their foreignness.

Insofar as information asymmetry and lack of familiarity allow for more earnings management, earnings may be inflated by IPO owners seeking to maintain control and personal benefits (Leuz, et al., 2003). The evidence on earnings management in IPOs is, however, mixed. Ball and Shivakumar (2008) posit pre-IPO accruals should be used to capture earnings management to influence IPO outcomes, implying measures of post-IPO accruals used by Teoh, et al. (1998) are contaminated by the effect of IPO proceeds on abnormal accruals. Ball and Shivakumar (2008, p. 324) show that pre-IPOs earnings are more conservative than mature firms' earnings and attribute this finding to "higher monitoring by auditors, boards, analysts, rating agencies, press, and litigants, and to greater regulatory scrutiny." A similar result is reported in Venkataraman, Weber, & Willenborg (2008), who attribute it to the 1933 Securities Act. This Act governs IPOs and provides investors with better legal protection than the 1934 Securities Exchange Act, which applies to the secondary market.[4] In contrast, Aharony, Lin, & Loeb (1993) do not find evidence of either earnings inflation or deflation in pre-IPO financials.[5]

2.2 Bonding to US Institutions

Foreign firms may decide to list in the US for several reasons including benefiting from highly liquid markets, broader investor base, cheaper finance, and greater product and corporate visibility (Licht, 2003). Coffee (1999) and Stulz (1999) argue that a different set of benefits - related to

[4] Perhaps the most relevant section of the 1933 Act is Section 11. It stipulates damages can arise when an investor relies on a prospectus and that the award to the successful plaintiff is larger when the difference between the offer price and the sell price is greater, or the price at the time of the lawsuit. Lowry and Shu (2002) find the incidence of litigation against IPOs stands at about 6% and that most of the suits were brought under this section.

[5] Ndubizu (2007) finds foreign IPOs manage earnings more than mature US firms. Lee and Masulis (2011) find IPOs select underwriters to reduce information asymmetry, which, in turn, reduces earnings management. However, both papers use post-IPO quarterly accruals. We control for underwriters' reputation in our robustness tests (see Section 5.2).

corporate governance - plays an important role in the listing decision. Specifically, by listing in the US, foreign firms "rent" what many regard (but not all agree upon) to be the strongest global set of legal, enforcement, and disclosure mechanisms. As such, "renting" legal institutions helps these firms to credibly mitigate agency conflicts that are otherwise unavoidable in their home countries. However, as Coffee (2002) acknowledges, in the case of cross-listing (i.e., firms with US as well as home listings), foreign firms must also meet home-country rules and cannot exclusively obey US rules. He further argues that in order to completely escape home jurisdiction, a foreign firm should adopt an IPO route. Prior literature is silent on whether this conjecture is supported empirically. Amir, Harris, & Venuti (1993) and Lang, et al. (2006) provide evidence on earnings management consistent with *mature* cross-listed firms not fully bonding with US reporting standards. Silvers (2016) examines SEC enforcement actions against foreign firms listed in the US and finds positive market reaction to such enforcement actions in mature foreign firms not targeted by the SEC. Silvers (2016) interprets this result as supporting bonding; however, the cause of this effect may be due to lower expected litigation costs in non-target firms because the SEC has constrained resources.

A number of legal scholars have challenged the bonding theory and its underlying assumptions. Licht (2000, 2003) argues the legal remedies available to shareholders of US-listed foreign firms are markedly weaker than those available to shareholders of domestic US firms. Moreover, for foreign firms the SEC "cuts corners" on issues of corporate governance, evidence of which can be found in official pronouncements (e.g., NYSE, 2013).[6] Shnitser (2010, p. 1644) further states that "foreign issuers face minimal litigation exposure when cross-listing in the US." Cheng, Srinivasan, & Yu (2014) show the incidence of class action lawsuits against cross-listed firms is significantly

[6] This regulatory "lighter touch" is likely motivated by the desire to attract foreign listings to the US.

lower than against US firms. Similar to Fanto (1996) and Siegel (2005), they posit this is caused by greater challenges in obtaining relevant information from foreign firms in regard to litigation.

While the bonding hypothesis highlights the role of legal and enforcement mechanisms, several papers point to the possibility that commitment to high-quality reporting may take place even in the absence of formal rules or powerful regulators. In Gomes (2000)'s model insiders commit not to expropriate minority shareholders in order to establish a reputation for "good behavior." Insiders benefit from this strategy because it helps them obtain the highest price when selling their shares following the IPO. The implication of this literature is reporting more conservatively can convey a commitment not to use earnings management to mask expropriation of minority shareholders.

2.3 Perceptions of home institutions

Prior research has established history and culture shape a country's institutions (Greif, 1994), resulting in cross-country differences in institutions. Institutional theorists have emphasized the importance of perceptions of economic actors in various institutional contexts (Scott, 1995). For example, investor perceptions of investment risk have been linked to the effect of the institutional characteristics of the country origin on the listing choice (Moore, Bell, Filatotchev, & Rasheed, 2012; Sarkissian and Schill, 2003). For investors, geographical and cultural proximity appear to drive decisions in which firms to invest whereby investors exhibit a home bias, as they prefer local firms over foreign firms (Coval and Moskowitz, 1999; Grinblatt and Keloharju, 2001). The home bias literature also suggests perceptions of foreign firms are shaped by institutional and cultural distance (Anderson, Fedenia, Hirschey, & Skiba, 2011).

The international business literature termed this "aversion" to foreign firms as the liability of foreignness (e.g., Zaheer, 1995). Specifically, Zaheer (1995, p. 343) defines this liability as "all

additional costs a firm operating in a market overseas incurs that a local firm would not incur."[7] Nahata, Hazarika, & Tandon (2014) argue that differences in institutions can be a major source of conflict between company insiders and outsiders, making more costly for a foreign firm to attract investment. More specifically, in many cases the IPO firm's operations remain in the home country and disputes between shareholders and other stakeholders may need to be resolved outside the US, which complicates conflict resolution for US investors and increase cost of capital for a foreign firm (Nahata, et al., 2014).

Institutional similarity also shapes trust, which in turn influences investors' actions in stock markets owing to perception of investment risk (Guiso, Sapienza, & Zingales, 2008, 2009). Prior research argues a firm's home institutions matter in that economic agents in the host country are more suspicious of foreign firm who come from farer institutional distance (Anderson, et al., 2011; Xu and Shenkar, 2002). Consistent with these arguments, emerging research in management and international business has presented evidence of a valuation effect of investors' perception of a foreign IPO's home country institutions (e.g., Bell, Filatotchev, & Aguilera, 2014; Gu, et al., 2018).

Perceptions also likely shape enforcement and litigation. It is well-known the SEC has faced significant budget constraints (Cox, Thomas, & Kiku, 2003; Stewart, 2011). Enforcement therefore has to be prioritized with regard not only to political and enforcement costs, but also with respect to perceptions. Prior research suggests the enforcement would first target US domestic firms, because of their proximity and cost-saving implications (Kedia and Rajgopal, 2011), as well as non-politically connected firms (Correia, 2014). Private investors may also find it is simpler to

[7] Research in accounting has largely overlooked the role of perceptions in the IPO market. An exception to this is a recent study by Blankespoor, Hendricks, & Miller (2017), who use experimental research design to investigate the effect of perceptions on IPO pricing.

sue US managers because of the difficulties in dealing with firms headquartered in non-US jurisdictions (Cheng, et al., 2014).[8] In addition, with a home bias in investment decisions (Coval and Moskowitz, 1999), the SEC may face political and media pressure if it fails to discipline US domestic IPOs first and foremost (Bushman and Piotroski, 2006), and then foreign firms that are more adversely perceived by investors and the public.

2.4 Hypotheses

It follows from the previous discussion the strength of bonding is related, at least in part, to the threats of enforcement and litigation. To the extent that domestic US IPOs attract more scrutiny, foreign IPOs in the US anticipate lower enforcement and litigation threats than domestic US IPOs. We therefore expect the level of earnings management in US-based foreign IPOs to exceed that of domestic IPOs. Our first hypothesis, in null form, is as follows:

> **H1:** Foreign firms with IPOs in the US market manage earnings to a greater extent than US firms with IPOs in the US market

Our second hypothesis concerns how earnings management varies with home country institutions. We argue perceptions form a channel through which home institutions can shape IPO earnings management. IPOs originating from weak institutions countries expect to be scrutinized more by US investors and regulators[9] and so attempt to alleviate investor and SEC concerns about accounting quality by managing earnings less. In contrast, managers of IPOs originating from countries with strong home institutions face a smaller incentive to constrain earning management. Our second hypothesis therefore is:

[8] Consistent with this, Cheng et al. (2014) report that foreign firms are sued at a rate of 2.16% whereas in a sample of matched US firms the rate is 4.10%.
[9] We provide evidence on the threat of litigation and enforcement in Table 4.

H2: Earnings management is higher in IPOs originating from countries with strong legal institutions than in IPOs originating from countries with weak legal institutions.

3. Research Design and Sample

3.1 Measuring Abnormal Accruals in IPOs

Our measure of discretionary accruals uses financial data from IPO prospectuses and is based on Ball and Shivakumar (2008) for a number of reasons. First, the information in a prospectus is subject to more intense scrutiny by, for example, the SEC,[10] underwriters, and in particular, auditors (Venkataraman, et al., 2008). Second, in an IPO context, reporting choices could be directed at influencing the amount of cash proceeds insiders hope to raise, or the subsequent market price. Post-IPO earnings obviously cannot be used for this purpose. Finally, using pre-IPO abnormal accruals is also warranted from a more technical perspective, as post-IPO accruals are likely affected by the use of the IPO's cash proceeds. Therefore, post-IPO accruals are a contaminated measure of strategic earnings management exercised by insiders prior to the IPO.

Ball and Shivakumar (2008) modify the Jones (1991) model to account for conservatism in accruals. In the IPO context, measuring abnormal accruals from such a model is motivated by the view that IPOs report more conservatively than mature firms. Moreover, Ball and Shivakumar (2008) argue against the use of the original Jones (1991) model in IPOs because it results in an unusually high measure of abnormal accruals. The modification adopted by Ball and Shivakumar (2008) allows negative cash flows to be incorporated into accruals at a different speed than positive cash flows. This approach measures normal accruals as the predicted value of regression line (omitting in all equations the time index *t* and individual IPO index *i*):

$$ACC = \beta_1 + \beta_2 \Delta Rev + \beta_3 FASSET + \beta_4 CFO + \beta_5 DCFO + \beta_6 DCFO * CFO + \varepsilon \quad (1)$$

[10] Although the SEC vets IPO documents prior to listing, the SEC audits financial statements only periodically following an IPO.

where accruals (*ACC*) is net income before extraordinary plus depreciation and amortization minus operating cash flows. *ΔRev* is the change between year *t* and year *t*-1 in net sales. This model employs the net book value of property, plants, and equipment, *FASSET*, and operating cash flow, *CFO*. All aforementioned variables are scaled by total assets at the beginning of the year. *DCFO* takes the value 1 if *CFO* < 0 and 0 otherwise. We winsorize the top and bottom 1% of each continuous explanatory variable.[11]

We estimate model (1) in two ways. First, to provide descriptive statistics regarding greater reporting conservatism in IPOs, comparable to Ball and Shivakumar (2008), we measure abnormal accruals in the IPO sample relative to mature US-listed firms. Specifically, based on the entire COMPUSTAT population, but excluding IPOs, we run model (1) on an industry-year basis and use the regression coefficients to calculate the abnormal accrual variable (*ABNACC*) for all sample IPOs as follows:

$$ABNACC = ACC - \left[\hat{\beta}_1 + \hat{\beta}_2 \Delta Rev + \hat{\beta}_3 FASSET + \hat{\beta}_4 CFO + \hat{\beta}_5 DCFO + \hat{\beta}_6 DCFO * CFO \right] \quad (2)$$

Second, because our main focus is on the IPO market, we run model (1) in the main analyses for only the IPO sample and use the resultant coefficients in model (2).[12]

3.2 Measuring the Strength of Home Institutions

The strength of an IPO's home institutions is captured by the variable *INST*. This variable is based on the classification of legal institutions provided by Leuz (2010). Specifically, Leuz (2010) assigns national legal institutions into three clusters. Countries in the first cluster are regarded as

[11] We apply a similar procedure throughout the paper.

[12] Due to the limited sample size, and in line with Peek, Meuwissen, Moers, & Vanstraelen (2013), we combine several years for each industry. Specifically, we use three consecutive years as a single period, as follows: 1990–1994, 1995–1998, 1999–2001, 2002–2005, and 2006–2009. Model (1) is estimated to require at least ten observations.

having the strongest institutions. We therefore set *INST* = 1 if an IPO comes from this cluster and zero otherwise.

3.3 Regression Models and Variables

Our first objective is to examine the link between the threats of SEC enforcement and private litigation and *INST*, as well as some other country-specific variables. To do so, we use a parsimonious country-level model for each threat, as follows:

$$SEC\_ENF = \alpha + \beta_1 INST + \beta_2 AGG\_EM + \beta_3 GDP + \varepsilon \quad (3a)$$

$$PLIT = \alpha + \beta_1 INST + \beta_2 AGG\_EM + \beta_3 GDP + \varepsilon \quad (3b)$$

In model 3a the dependent variable - our proxy for the threat of SEC enforcement of *foreign* firms (*SEC_ENF*) - is the percentage of firm-years observations with SEC enforcement reported in Table 2 in Silvers (2016) per-foreign country sample.[13] In model 3b the dependent variable - our proxy for private litigation (*PLIT*) - is the percentage of firm-years with securities class actions per foreign country reported in Table 3 in Cheng, et al. (2014).[14] Finding β_1 is negative is consistent with the view that perceptions of stronger home institutions is associated with fewer enforcement actions and reduced private litigation. Both models feature the same control variables, which may shape the enforcement and private litigation threats. The first is the country-level aggregated earnings management measure (*AGG_EM*), as calculated by Boulton, Smart, & Zutter (2011). The second is the IPO's home country's GDP in the year the IPO takes place.

[13] Silvers (2016) does not report a measure of enforcement of US firms. Hence we run model 3a on the foreign IPO subsample. In using Silvers' (2016) Table 2, we implicitly assume that SEC enforcement of mature foreign firms is similar to its enforcement of foreign IPOs. If this assumption is violated, then *SEC_ENF* is measured with noise and we are less likely to establish significant relations.

[14] We also assume that private litigations rates reported in Cheng et al (2014) of mature firms are similar for IPOs.

In analyzing the association between abnormal accruals, *ABNACC*, and an IPO's foreign status and home institutions in the IPO sample, we employ the following model:

$$\begin{aligned} ABNACC = {} & \alpha + \beta_1 THREAT + \beta_2 LITIG + \beta_3 AUD + \beta_4 SOX + \beta_5 LTA + \beta_6 LPROC \\ & + \beta_7 HiTECH + \beta_8 LEV + \beta_9 LSALES + \beta_{10} CFO + \beta_{11} LROA \\ & + \sum Industry + \sum Year + \varepsilon \end{aligned} \quad (4)$$

where *THREAT* is either *SEC_ENF* or *PLIT*. We expect a negative relation between *ABNACC* and *THREAT* to the extent that a great risk of enforcement and litigation constrains earnings management.

To test the direct effect of foreignness, we define an indictor variable, *FOREIGN*, which is set equal to 1 if the IPO is a foreign IPO, and zero otherwise. We then run the following model in the full sample, which includes both US IPOs and foreign IPOs:

$$\begin{aligned} ABNACC = {} & \alpha + \beta_1 FOREIGN + \beta_2 LITIG + \beta_3 AUD + \beta_4 SOX + \beta_5 LTA + \beta_6 LPROC \\ & + \beta_7 HiTECH + \beta_8 LEV + \beta_9 LSALES + \beta_{10} CFO + \beta_{11} LROA \\ & + \sum Industry + \sum Year + \varepsilon \end{aligned} \quad (5)$$

We also test how earnings management varies across foreign IPOs by using model 5 after replacing *FOREIGN* with *INST*. Our main coefficient of interest is β_1, the coefficient on *FOREIGN* (or, *INST*). When *FOREIGN* is used in model 5, this coefficient captures the incremental level of abnormal accruals in foreign IPOs over that of domestic IPOs. When using *INST* within the subsample of foreign IPOs, this coefficient captures the incremental level of abnormal accruals in foreign IPOs originating from strong institutions countries over that of foreign IPOs from weak institutions countries.

Models 4 and 5 include several common control variables that are organized in three groups: variables capturing other sources of scrutiny, variables capturing incentives to inflate earnings, and other control variables. The first set of control variables includes *LITIG*, an industry-based

indicator for litigation risk consistent with Frankel, Johnson, & Nelson (2002) and Ashbaugh, LaFond, & Mayhew (2003).[15] We control for auditor size, as monitoring by large auditors is stronger than by small auditors (Ball and Shivakumar, 2008; Fan and Wong, 2005; Venkataraman, et al., 2008). Specifically, *AUD* is an indicator variable that is set equal to 1 if the auditing firm is a Big-6, Big-5 or Big-4 in 1990–1997, 1998–2001, and 2002 onwards, respectively, and 0 otherwise. *SOX* is an indicator variable that is set equal 1 if the IPO occurred after enactment of the Sarbanes-Oxley Act (SOX) in July 2002, and 0 otherwise. Following Cohen, Dey, & Lys (2008), *SOX* controls for the possibility that a stricter regulatory environment following SOX has influenced earnings management in IPOs. Because larger IPO firms may be subject to greater public attention, we include *LTA*, the log of total assets. The expected sign of the coefficients included in this group is negative.

The second group of control variables includes proxies for incentives to inflate earnings. First, we control for the possibility of earnings management that aims to influence the IPO proceeds. Specifically, we employ the variable *LPROC*, which is the log of actual proceeds.[16] Notably, proceeds also act as a measure of the IPO's importance and size. Many IPOs come from the high-tech sector. Since such firms may be harder to understand owing to a high level of intangibles (Barth, Beaver, & Landsman, 2001), managers may have a greater incentive to inflate earnings, because high R&D expenses depress reported earnings. We therefore include an indicator variable *HiTECH* for technology firms, as defined by Security Data Corporation (SDC) Platinum and Thomson Reuters. *LEV* is the ratio of total debt over total assets at the end of the fiscal year

[15] The industries that are more prone to US litigation are identified in Francis, Philbrick, & Schipper (1994).
[16] We use the actual proceeds because we do not have a measure for target proceeds. Additionally, the results remain the same if instead of the offer price we use is first-trading-day price.

preceding the IPO. It controls for the possibility that leverage affects earnings management. The expected sign of the coefficients included in this group is positive.

The third group of control variables includes additional firm fundamentals. Although IPO firms are relatively young, an IPO may occur at different stages of the product life cycle, which may influence reporting choices. Assuming life cycle is reflected in recorded sales, we include *LSALES*, the log of sales at the end of the fiscal year preceding the IPO, which is also commonly used as a measure of risk (Loughran and Ritter, 2004). Lagged return on assets (ROA) (*LROA*) and operating cash flow (*CFO*) are included to control for the effect of performance on earnings management (Gul, Fung, & Jaggi, 2009; Kothari, Leone, & Wasley, 2005).[17] Finally, we include year- and industry-fixed effects.

3.4 The Sample

We identify companies from the SDC New Issues database that were first-time issuers between 1990 and 2009 in the US and not listed elsewhere. Foreign firms are incorporated firms whose primary executive offices are located outside of the US (Bruner, Chaplinsky, & Ramchand, 2006).[18] We exclude equity listings that originated from spin-offs of publicly listed companies or from mergers and acquisitions. We further eliminate warrants, units and rights offerings, utility firms and financial service firms based in the Bahamas, Cayman Islands, and Bermuda for tax purposes. We also exclude all firms with insufficient financial data.

Panel A of Table 1 provides information regarding the formation of the sample analyzed between foreign and domestic IPOs. Panel B presents the sample industry composition according

[17] If model (1) is correctly specified, *CFO* is orthogonal to abnormal accruals (the error term in (1)). However, if (1) suffers from an omitted variable problem, *ABNACC* and *CFO* may be correlated. It is plausible that without *CFO*, Eq. (3) may suffer from the same problem. Hence, including *CFO* in (3) helps to mitigate the omitted correlated variable problem.

[18] We confirmed that the SEC defines foreign IPOs in our sample as foreign registrants (see https://www.sec.gov/divisions/corpfin/internatl/companies.shtml).

to the Fama-French (FF) 12-industry classification. This panel shows that the largest group of IPOs in the sample is from the Business Equipment industry (FF6), followed by Telephone and Television Transmission (FF7), and Manufacturing (FF3). Panel C reports the distributions of IPOs according to the country of origin in five periodic windows from 1990–2009.[19] Consistent with other studies on foreign issuers in the US, the largest number of IPOs is from Israel (64), followed by China (46), the UK (32), and Canada (29). Most of the IPOs take place before 2001, reflecting the 2001 internet and dot.com bubble burst and its effect on the high-technology sector, which had generated many IPOs.

We manually extract from each foreign firm's prospectus many of the variables needed for the empirical investigation. We complement this by searching the SEC's Edgar database and the Perfect Filing database. Foreign currency figures are translated into US dollar figures based on the exchange rates disclosed in the prospectuses. We obtain the financial information of the domestic US IPOs from COMPUSTAT and SDC Platinum. Importantly, financial information in the foreign prospectuses is prepared under US GAAP. Hence, changes in home countries' accounting rules are not expected to influence our findings.[20] We index monetary variables to the 2005 US dollar value based on the Consumer Price Index (CPI) as reported by the International Monetary Fund.[21]

[Insert Table 1 about here]

Table 2 reports summary statistics for the variables used in the empirical analysis. Panel A presents a summary for abnormal accruals measured using mature US firms and the IPO sample as the two benchmarks for estimating model (1). It also reports the descriptive statistics for the full

[19] These periods were also used in estimating model (1).
[20] In our sample there are only 10 IPOs that report under IFRS. Nevertheless, in Section 5.5 we investigate whether IFRS adoption in the IPO's home country affects the results.
[21] Retrieved from http://www.imf.org/external/data.htm#data on April 2011.

sample, the domestic US IPO subsample, and the foreign IPO subsample, as well as providing a univariate analysis of differences between the two subsamples. Using the mature firms' benchmark, the mean of *ABNACC* is negative and statistically different from zero, suggesting that IPO firms are more conservative than mature firms. This finding is consistent with heightened scrutiny and monitoring effects that dominate incentives to inflate pre-IPO earnings (Ball and Shivakumar, 2008). While both domestic and foreign IPOs are conservative relative to mature firms, a comparison of the means and medians indicates domestic IPOs are more conservative than foreign IPOs. This finding is also the case when abnormal accruals are measured within the IPO sample, which provides preliminary evidence with respect to our first research question.[22]

Turning to the IPO sample, it is evident that the domestic IPOs and foreign IPOs subsamples are different, apart from leverage.[23] The mean of *INST* is lower in foreign IPOs than in domestic US IPOs. This is consistent with US legal institutions being stronger than foreign institutions, on average. Foreign IPOs attract higher proceeds, as seen from *LPROC*. Foreign IPOs are larger and report higher sales. Inspecting *CFO* and *LROA* indicates that foreign IPOs perform better than their domestic counterparts, as per prospectus financials.

Panel B further analyzes the foreign IPO subsample, distinguishing between home countries with strong and weak institutions, based on whether the IPO is above or below the median of the *INST* variable resulting in classifying 56% of the observations as strong home institutions. A comparison of abnormal accruals (*ABNACC*) indicates that foreign IPOs with weak home institutions are *more* conservative than foreign IPOs with strong home institutions, on average.

[22] In the remainder of the paper, *ABNACC* is measured with respect to the IPO sample.

[23] To address the differences between the samples, we run robustness tests (unreported) that restrict the domestic US-firms sample to observations with *LTA* and *LPROC* of at least the minimum values of these variables in the foreign sample. These did not yield any material differences in our findings.

Note that IPOs with weak home institutions employ relatively larger auditors, generate more sales and CFO, and raise more money from the IPO.

In untabulated analysis we compare the statistics for each variable used for the estimation of abnormal accrual levels in the pooled IPO sample. We find mean accruals (*ACC*) is significantly more negative in domestic IPOs, indicating greater conservatism in domestic IPOs. The mean indicator for negative CFO (*DCFO*) is significantly higher in the domestic subsample, consistent with Panel A.

[Insert Table 2 about here]

Table 3 reports the correlation coefficients for the various variables. The correlation between *ABNACC* and *FOREIGN* is small, suggesting little effect of foreignness on signed abnormal accruals in a single factor analysis. The correlation between the abnormal accruals measure and *INST* is insignificant. *INST* and *FOREIGN* are highly and negatively correlated, since *INST* assumes highest values for US IPOs that are 75% of the entire sample. Therefore, we do not use both variables in the same regression model. *HOME_ENF* is negatively correlated with *FOREIGN*, since *HOME_ENF* is high for the US. No correlation value is reported to *FOREIGN* with *SEC_ENF* since we do not have a measure of SEC enforcement for domestic US firms. The correlation between FOREIGN and PLIT is -0.70, consistent with lower private litigation in foreign firm. Relatively high and negative correlations are shared between *HOME_ENF*, *SEC_ENF*, *PLIT* on one hand and *INST* on the other hand. However, *INST* is not used together with these three variables in any of the tests. All other correlations are quite small with the exception of the correlation between *LROA* and *CFO*. We nevertheless verify that multicollinearity does not affect our inferences in subsequent analyses.

[Insert Table 3 about here]

4. Main Findings

4.1 Threats of Enforcement and Private Litigation

Panel A of Table 4 presents the estimation results of models 3a - SEC enforcement - and 3b - private litigation. We run these models with two specifications. The first includes all 300 foreign IPOs and the second is run at the country level.[24] Accordingly, in the second specification, GDP is a country average based on the years in which IPOs from that country take place. The advantage of the first approach is that the sample reflects IPO frequency for each country. Such frequency may also influence the frequency of enforcement and litigation. In the second specification, this frequency does not play a role, as each country appears only once. Starting with SEC enforcement, the coefficient on *INST* is negative and highly significant in both specifications. This is consistent with SEC directing more enforcement resources to IPOs originating from countries with weak institutions. With private litigation, we find a similar result in the first specification, but not in the country-level specification. We note, however, that for this specification we have the smallest number of observations. In the case of private litigation we are also able to test if the rate of private litigation against US firms is higher than that for foreign firms, using litigations rates for US firms reported in Cheng, et al. (2014). Specifically, we regress *PLIT* on *FOREIGN*, *AGG_EM* and *GDP* using the entire sample. We find the coefficient on *FOREIGN* is negative and highly significant, consistent with lower private litigation rates for foreign IPOs (untabulated). When we further distinguish between foreign IPOs from strong home institutions and IPOs from weak home institutions, we find private litigation is less likely for the former. Overall, we infer from these findings IPOs from foreign countries are sued less than domestic US IPOs, and IPOs originating

[24] We do not have measures of SEC enforcement for domestic IPOs that are comparable to the measures we use for foreign IPOs.

from countries with weak institutions are exposed to greater enforcement and litigations threats than IPOs originating from countries with strong institutions.

Panel B reports the results for model 4, which examines the relation between signed abnormal accruals and SEC enforcement threat (columns 1–3), or private litigation threat (columns 4–6). Starting with SEC enforcement, in column 1 we use the entire foreign IPO sample. Here the coefficient on *SEC_ENF* is negative and significant at 1%, suggesting that a stronger enforcement threat reduces abnormal accruals. In column 2 we repeat this analysis while restricting the sample to foreign IPOs from strong institutions countries. Consistent with lower enforcement threat for these IPOs, we find no constraining effect for *SEC_ENF* on abnormal accruals. In contrast, in column 3, in which we focus on IPOs from countries with weak institutions, the coefficient on *SEC_ENF* is negative and significant at under 6%. This is consistent with a stronger enforcement threat for IPOs originating from countries with weak legal institutions. When we repeat the analysis using the threat of private litigation (columns 4–6), the results are similar in nature. That is, a greater threat of private litigation is associated with less earnings management for IPOs originating from countries with weak home institutions.[25]

Inspecting controls that are statistically significant, two observations are noteworthy. First, there seems to be a constraining effect for large auditors. Second, foreign high-tech firms report more conservatively. However, both results are confined to IPOs from weak home institutions.

Taken together, the results reported in Table 4 suggest enforcement and private litigations threats are stronger for foreign IPOs originating from countries characterized by weaker legal institutions. Consequently, these IPOs manage earnings less than IPOs from countries characterized by strong institutions, consistent with H2.

[25] We also verified that these results are robust to self-selection. We discuss self-selection in section 5.1.

[Insert Table 4 here]

4.2 Abnormal Accruals, IPO Foreignness, or Home Institutions

Table 5 reports results for the relations between an IPO's home institutions and earnings management. Starting with the foreign IPO subsample (column 1), the coefficient on *INST* is positive (*p*-value = 0.039). This finding implies abnormal accruals are larger in foreign IPOs from strong institutions countries and is consistent with lower litigation and enforcement threats for these IPOs. Column 2 reports the results for the full sample where *FOREIGN* replaces *INST*; this allows us to compare earnings management in foreign IPOs relative to domestic US IPOs (our H1). Here the coefficient on *FOREIGN* is positive and significant at 3.5%, indicating earnings inflation is higher at foreign IPOs. This is consistent with H1. In column 3 we repeat this analysis by adding an indicator variable for foreign IPOs that originate from strong home institutions (*FOREIGN_STRONG_INST*). Under this specification, *FOREIGN* captures the average degree by which abnormal accruals in foreign IPOs from weak home institutions exceed abnormal accruals in domestic US IPOs; *FOREIGN_STRONG_INST* then captures the incremental effect on abnormal accruals for foreign IPOs from strong institutions over foreign IPOs from weak institutions. That the coefficient on *FOREIGN* is insignificant indicates earning management in domestic IPOs and foreign IPOs from weak institutions is similar in magnitude, on average. The positive and highly significant coefficient for *FOREIGN_STRONG_INST* indicates that abnormal accruals are higher, on average, in IPOs from strong institutions than both US firms and other foreign firms. In column 4 we use the subsample of foreign IPOs from strong institutions countries. Here the coefficient on *FOREIGN* is positive and significant (*p*-value = 0.01), consistent with higher earnings management in foreign IPOs from strong institutions countries than domestic US

IPOs. In column 5 we compare IPOs from weak home institutions to domestic US IPOs and find that the coefficient is insignificant.

[Insert Table 5 here]

On the whole, we conclude from Table 5 that foreign IPOs inflate earnings more than domestic US IPOs, consistent with H1. In addition, supporting H2, the evidence indicates that within foreign IPOs, earnings inflation increases with the IPO's strength of home country institutions, as implied by the lower enforcement and private litigation threats.

5. Additional Analyses

5.1 Self-selection

One concern about the abovementioned findings is the coefficients are inconsistent owing to a selection bias. Specifically, we know from Panel B of Table 2 that IPOs from countries with strong institutions tend to come from the hi-tech sector, are smaller, less profitable, and raise smaller proceeds. The pressure to raise funds may favor listing in the richer US market, especially for loss-making firms. Once deciding to list in the US, such fledgling firms also face stronger incentives to inflate earnings. To address the selection bias, we run a two-step procedure following Heckman (1979).[26] In the first step we estimate the probability of listing in the US. In the second step we re-run Table 5 after including the inverse Mills ratios (*IMR*) computed from the first step. The model in the first step uses several determinants of the decision to list in the US based on the abovementioned observations regarding the differences between foreign IPOs from strong versus weak home institutions. *LTA* is included for firm size, *LPROC* proxies the intended size of the IPO, and *HiTECH* is included because high-technology firms likely find a US exchange more

[26] A similar approach has been used in the cross-listing literature (e.g., Doidge, Karolyi, & Stulz, 2004; Loureiro, 2010).

attractive (Caglio, Hanley, & Marietta-Westberg, 2016). We also include two country-level variables: the home country's GDP (*GDP*) to proxy for the size of the home country's capital market, and a measure of a country's aggregate earnings management (AGG_EM, taken from Table 2 in Boulton, et al., 2011). Finally, we add a measure of home enforcement, (*HOME_ENF*)[27] to control for Licht's (2003) suggestion that strict home regulation can cause local firms to conduct an IPO in the US. We also add our measures of SEC enforcement and private litigation threats, as these may deter a US listing, in which case we expect to find a negative coefficient. At the same time, these threats may attract a US listing by companies that want to signal their commitment to good governance. The sample used in the first step includes our 300 foreign IPOs. In addition, we identify and select all IPOs conducted in the home country of the foreign IPO in the same year and industry (using an FF12 classification) from SDC Platinum. The final sample includes 1,696 IPOs and run this selection model (first step):

$$\begin{aligned}\Pr(US\_Listing) = {} & \alpha + \beta_1 LTA + \beta_2 LPROC + \beta_3 AGG\_EM + \beta_4 HOME\_ENF + \beta_5 SEC\_ENF \\ & + \beta_6 PLIT + \beta_7 HiTECH + \beta_8 GDP + \varepsilon\end{aligned} \quad (6)$$

Table 6 reports the results of this two-step procedure, with Panel A providing the results of the first step (the selection model 6). Across the five columns of this panel, we present results for different combinations of *HOME_ENF*, *SEC_ENF*, and *PLIT*. When an IPO's home enforcement is included on its own (column 1), we find that it is positively related to the probability of US listing. However, when all three threat variables are included (column 5), home enforcement turns insignificant. *SEC_ENF* is positively related to the probability of US listing, regardless of whether it appears as the only threat variable or in a combination with any of the other two. We find no evidence the threat of private litigation in the US deters, or attracts, a US listing. Examining the

[27] We use the country enforcement index as measured and presented in Brown, Preiato, & Tarca (2014) by the country of origin of the foreign IPO and the IPO year. This index includes the US as well as our IPO foreign countries.

control variables, we find that the likelihood of a US listing for a foreign firm increases in firm size and expected proceeds. High-tech firms are also more likely to conduct their IPO in the US (Caglio, et al., 2016). Size of the home country's economy is negatively related to the listing probability. We also find evidence that the country level of earnings management explains the US listing decision (columns 2, 4–5).

In Panel B of Table 6 we report the results of estimating model 5 after the inclusion of the inverse Mills ratios obtained from each one of the five columns of Panel A. Across the five versions of the Mills ratios, the results are qualitatively similar to column 1 in Table 5. Specifically, the coefficient on *INST* is positive and statistically significant at the 5% level in the two rightmost models. The coefficients on *IMR* are statistically insignificant, suggesting that the selection bias, if any, is not directly related to earnings management by the foreign IPO.

[Insert Table 6 here]

5.2 Insider Ownership, VC Backing, and Underwriter's Rank

Leuz (2006) argues it is important to control for insider ownership in international studies of earnings management. Because ownership structures may be strongly influenced by home institutions, it is unclear if *FOREIGN* or *INST* capture differences in ownership structures rather than in underlying institutions. Therefore, we augment our main regression specifications (Tables 4 and 5) by adding a control variable, *INSIDER*, which measures the percentage of stocks retained by original IPO owners following the IPO. The average value for *INSIDER* is high (0.728), and it is virtually identical across domestic US IPOs and foreign IPOs.[28] In multivariate analyses we do not find that insider ownership is associated with signed abnormal accruals (not tabulated). This

[28] Insider ownership is similar in foreign IPOs from countries with strong home institutions and in foreign IPOs from countries with weak home institutions.

stands in contrast to Leuz (2006)'s finding of a positive relation between earnings management and insider ownership in cross-listed firms. With regard to our main findings (Tables 4 and 5), the signs and significance levels of the coefficients on *SEC_ENF*, *PLIT*, *FOREIGN*, and *INST* remain similar to those reported previously. We therefore conclude that our results do not reflect ownership-driven incentives to engage in earnings management.

In the main specification we use auditor size to capture monitoring mechanisms that likely constrain earnings management. Clearly, auditors are not the only agents that play such a role. The IPO literature has identified a similar role with venture capitalists (VC) (Chahine, Arthurs, Filatotchev, & Hoskisson, 2012; Nam, Park, & Arthurs, 2014) and reputable underwriters (Carter and Manaster, 1990). We therefore further control for VC backing and underwriters' ranking by adding an indicator variable *VC* and a control variable *UW_Rank* to the main regression specifications (Tables 4 and 5). *VC* is an indicator variable that is set equal to 1 when the IPO is backed by a VC, as identified in SDC Platinum and 0 otherwise. *UW_Rank* is the rank of the leading underwriter, as identified in SDC Platinum and reported on Jay Ritter's website.[29] The average value for *UW_Rank* is 7.85, and it is virtually identical across domestic US IPOs and foreign IPOs. A t-test on *VC* reveals that the number of VC-backed US IPOs is larger than foreign IPOs. Adding these variables largely does not alter our main inferences from Tables 4 and 5[30] (not tabulated).

[29] http://bear.warrington.ufl.edu/ritter/ipodata.htm

[30] In column 6 of Panel B of Table 4 (the subsample of foreign IPOs from weak institutions countries) *PLIT* turns insignificant once we control for VC backing. However, *PLIT* remains negative in the entire foreign sample.

5.3 IPO Multi-listings

While most of our foreign IPOs list their stock exclusively in the US, in our sample 65 foreign firms simultaneously conduct an IPO in the US and in their home countries.[31] Our results may be therefore attributed to the fact that such firms cannot exclusively bond to US regulations. We thus add to models 4 and 5 an indicator variable (*MULTI*) if an observation belongs to a simultaneous foreign IPO. If incentives to report conservatively in pre-IPO earnings were stronger (weaker) for multi-country IPOs (owing to an additional and dilutive monitoring effect), we would expect to find that the coefficient on *MULTI* is negative (positive). In untabulated analysis we find that, in Table 4 and column 1 of Table 5, the coefficient on *MULTI* is insignificant, suggesting that multi-listing does not add another level of monitoring and scrutiny that results in more conservative pre-IPO earnings. The sign and significance of *SEC_ENF*, *PLIT* (in Table 4), and *INST* (in column 1 in Table 5) are similar to those reported previously.

5.4 Choice of US Exchange

Foreign IPOs can choose on which US exchange to list their stock. Frost, Gordon, & Hayes (2006) argue that disclosure rules, monitoring, and enforcement may vary across exchanges and that exchange membership can thus add an extra layer of monitoring and enforcement over and above that set by the SEC and other regulators. It is possible that exchange membership is correlated with *FOREIGN* and *INST* because IPOs from the same country may flock to the same exchange and benefit from experience sharing. If the exchange-listing decision is driven by factors that are correlated with home institutions, we may be incorrectly attributing our results to the IPO's

[31] This multi-listing involves 19 foreign countries, with the UK leading the other markets (15 observations).

home country's security laws. To test this idea, we add indicators for NYSE and AMSE in models 4 and 5. Our main findings are robust to this modification.

5.5 Changes in Reporting Standards in Home Countries

As our sample period is quite long, possible changes in home institutions over time may influence our findings. In particular, the adoption of International Financial Reporting Standards (IFRS) and a greater enforcement threat in home countries may have affected incentives to inflate earnings in an IPO's prospectus. However, we have only nine observations where IFRS is used; hence we do not have enough variations in the data to explore the IFRS effect. Nonetheless, in 68 observations, foreign IPOs use home GAAP and reconcile to US GAAP. We examine whether this group drives our results by adding an indicator for reconciliations in models 4 and 5. In Table 4, controlling for reconciliations does not alter our inferences from columns 1–5. However, we find that *PLIT* is unrelated to abnormal accruals in the weak institutions subsample. Our inferences from column 1 of Table 5 also remain intact.[32]

5.6 Pricing of Abnormal Accruals

While earnings management may be associated with several incentives, one possible explanation debated in the literature is managers' attempt to influence stock prices. It has been proposed there is an equilibrium whereby investors expect managers to inflate earnings, and given this belief, managers' best reaction is to meet these expectations (Shivakumar, 2000; Stein, 1989). However, in this equilibrium, investors do not price abnormal accruals, on average. To investigate the pricing implications of abnormal accruals in our setting, we regress the following model:

[32] It is hard to assess the effect of the reconciliation indicator in columns 2–4 in Table 5 owing to the fact that we have only 5.4% of observations in the full sample with reconciliations.

$$MTA = \alpha + \beta_1 ABNACC + \beta_2 FOREIGN \ or \ INST + \beta_3 LITIG + \beta_4 AUD + \beta_5 SOX + \beta_6 LTA + \beta_7 LPROC + \beta_7 HiTECH + \beta_8 LEV + \beta_9 LSALES + \beta_{10} CFO + \beta_{11} LROA + \sum Industry + \sum Year + \varepsilon \quad (7)$$

The dependent variable in model 7 is the market value of the IPO at the beginning of the first trading day, scaled by pre-IPO total assets. The main variable of interest is *ANBACC*. We report the results in Table 7, which is structured similarly to Table 5. Across all four columns of this table, the coefficient on *ABNACC* is insignificant, indicating that abnormal accruals are not priced regardless of IPOs' country of origin.[33] Additionally, in column 1 the coefficient on *INST* is negative, while in column 3 the coefficient on *FOREIGN* is lower than the same coefficient in column 4 (0.128 vs. 0.318). Taken together, these results suggest IPOs originating from strong institutions countries attract lower valuations, on average, than IPOs from weak institutions countries and their pricing is closer to the pricing of US IPOs. When all foreign IPOs are pooled together with domestic US IPOs (column 2), the coefficient on *FOREIGN* is positive and highly significant. This suggests that investors in the primary market assign a price premium to foreign IPOs relative to domestic IPOs, although the price premium is lower for IPOs originating from strong institutions countries.[34]

6. Summary and Conclusions

We provide evidence pertaining to the bonding hypothesis in the context of the US IPO market. Our results suggest SEC enforcement and private litigation threats are higher for IPOs originating from countries with weak institutions than IPOs from strong institutions countries. Greater enforcement and litigations threats, in turn, are associated with less earnings inflation. This is

[33] These findings hold also when we drop *FOREIGN* and *INST* from the model specification and when we control for self-selection in column 1.
[34] A further analysis of the pricing implications of *FOREIGN* is beyond the scope of this paper.

particularly pronounced for IPOs originating from countries with weak institutions (they manage earnings at a level similar to domestic US IPOs). However, we do not find that earnings management is priced.

Since our results suggest enforcement and litigation are not applied with a similar force to domestic and foreign IPOs, we conclude the bonding hypotheses does not seem to hold in this market. The reasons we provide for this finding relate to how liability of foreignness in the US IPO market is likely associated with perceptions of (or trust in) foreign institutions. In particular, we conclude the degree of bonding is inversely related to the strength of foreign institutions. We rule out several alternative explanations that may be behind this relation, including selection bias, insider ownership, and choice of US exchange.

The result that bonding is inversely related to institutions is surprising in the light of prior research that finds mature cross-listed firms from countries with weak legal institutions inflate earnings to a greater extent than similar firms from strong home institutions. Future research can further explore the reasons for these difference between the main and secondary markets.

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Table 1. Sample Description

Panel A: Sample Development

	US	Foreign	Total
All SDC Platinum US and foreign IPOs in years 1990–2009	4948	647	5595
Less observations:			
For which prospectus not available	-	136	136
With offering other than common/ordinary stock	-	117	117
For financial services firms and utilities	1498	19	1517
Initial sample	3450	375	3825
Insufficient financial data necessary for comparing abnormal accruals in IPOs to mature US firms (Table 2)	2427	34	2461
Sample used in mature US benchmark (Table 2)	**1023**	**341**	**1364**
Insufficient data for control variables	54	41	95
Sample with available controls	969	300	1269
Less than ten observations for year and industry matching required to calculate abnormal accruals in IPO sample	13	0	13
Final abnormal accruals IPO Sample	**956**	**300**	**1256**

Panel B: Sample Selection by Fama-French 12 Industry Classification

		US	Foreign	Total
FF1	Consumer Non-Durables	21	6	27
FF2	Consumer Durables	14	5	19
FF3	Manufacturing	52	21	73
FF4	Oil, Gas, and Coal Extraction and Products	20	2	22
FF5	Chemicals and Allied Products	-	-	-
FF6	Business Equipment	366	143	509
FF7	Telephone and Television Transmission	36	38	74
FF8	Utilities	-	-	-
FF9	Wholesale, Retail, and Some Services	89	7	96
FF10	Healthcare, Medical Equipment, and Drugs	197	29	226
FF11	Finance	-	-	-
FF12	Other	161	49	210
Total		**956**	**300**	**1256**

Panel C: IPO Country of Origin by Period

Country	1990–1993	1994–1997	1998–2001	2002–2005	2006–2009	Total
Argentina	0	0	3	0	1	**4**
Australia	0	2	0	0	0	**2**
Belgium	0	2	0	0	0	**2**
Brazil	0	1	0	0	0	**1**
Canada	3	9	12	2	3	**29**
China	0	0	5	14	27	**46**
Denmark	1	0	0	0	0	**1**
Finland	0	1	0	0	0	**1**
France	0	6	4	0	0	**10**
Germany	0	2	5	0	0	**7**
Greece	0	0	3	2	2	**7**
Hong Kong	0	9	3	3	0	**15**
India	0	0	2	0	0	**2**
Ireland	0	4	5	0	2	**11**
Israel	9	22	23	5	5	**64**
Italy	1	3	1	1	0	**6**
Japan	0	0	2	0	0	**2**
Mexico	2	0	0	1	0	**3**
Netherlands	2	14	4	0	1	**21**
New Zealand	0	3	0	0	0	**3**
Norway	0	0	1	0	0	**1**
Poland	0	1	0	1	0	**2**
Singapore	1	3	2	0	1	**7**
South-Korea	0	1	3	3	1	**8**
Spain	0	0	2	0	0	**2**
Sweden	0	3	1	0	0	**4**
Switzerland	0	3	3	1	0	**7**
UK	2	18	10	2	0	**32**
US	26	311	282	244	106	**956**
Total	**47**	**418**	**376**	**279**	**149**	**1256**

Notes: The table presents the sample selection process (Panel A), composition by industry (Panel B), composition by country and by period and country (Panel C). Panel A: Two observations are missing for *INST* further reducing the controls sample to 1276. We lose three further observations for incomplete panel when analyzing abnormal accruals in Tables 4 and 7.

Table 2. Summary Statistics

Panel A: Summary Statistics of the Main Variables and Univariate Analysis Comparing Domestic and Foreign IPOs

	Full Sample						Domestic US IPOs						Foreign IPOs					
	N	**Mean**	**STD**	**Q1**	**Median**	**Q3**	**N**	**Mean**	**STD**	**Q1**	**Median**	**Q3**	**N**	**Mean**	**STD**	**Q1**	**Median**	**Q3**
Mature US Firms benchmark																		
ABNACC	1364	-0.268	0.929	-0.245	-0.037	0.043	1023	-0.323	0.997	-0.287	-0.050	0.031	341	-0.104***	0.662	-0.125	-0.007***	0.118
IPO Sample																		
ABNACC	1256	-0.002	0.624	-0.113	0.028	0.213	956	-0.044	0.594	-0.129	0.018	0.187	300	0.132***	0.697	-0.078	0.068	0.317
FOREIGN	1256	0.239	0.427	0.000	0.000	0.000	956	0.000	0.000	0.000	0.000	0.000	300	1.000***	0.000	1.000	1.000***	1.000
INST	1256	0.896	0.306	1.000	1.000	1.000	956	1.000	0.000	1.000	1.000	1.000	300	0.563***	0.497	0.000	1.000***	1.000
MTB	1103	0.160	0.327	0.025	0.063	0.149	803	0.117	0.189	0.024	0.060	0.123	300	0.275***	0.529	0.027	0.085***	0.233
HOME_ENF	1256	39.755	10.423	39.000	39.000	53.000	956	43.657	6.600	39.000	39.000	53.000	300	27.320	10.632	18.000	26.500***	37.000
SEC_ENF	300	0.016	0.015	0.007	0.008	0.027	0	.	.	.	.	.	300	0.016	0.015	0.007	0.008	0.027
PLIT	270	2.493	1.465	2.100	2.260	3.230	0	.	.	.	.	.	270	2.493	1.465	2.100	2.260	3.230
LITIG	1256	0.259	0.438	0.000	0.000	1.000	956	0.277	0.448	0.000	0.000	1.000	300	0.205***	0.401	0.000	0.000***	0.000
AUD	1256	0.740	0.439	0.000	1.000	1.000	956	0.705	0.456	0.000	1.000	1.000	300	0.850***	0.354	1.000	1.000***	1.000
SOX	1256	0.334	0.472	0.000	0.000	1.000	956	0.357	0.479	0.000	0.000	1.000	300	0.261***	0.441	0.000	0.000***	1.000
LTA	1256	17.746	1.670	16.680	17.494	18.649	956	17.695	1.527	16.703	17.478	18.507	300	17.932**	2.056	16.593	17.535	19.288
LPROC	1256	18.051	1.025	17.500	18.048	18.594	956	17.968	0.905	17.485	17.978	18.489	300	18.300***	1.303	17.636	18.260***	19.071
HiTECH	1256	0.486	0.500	0.000	0.000	1.000	956	0.449	0.498	0.000	0.000	1.000	300	0.204	0.489	0.000	1.000	1.000
LEV	1256	0.204	0.179	0.039	0.169	0.338	956	0.205	0.178	0.042	0.169	0.338	300	0.599***	0.184	0.034	0.161***	0.339
LSALES	1256	16.888	3.828	16.174	17.406	18.683	956	16.761	4.039	16.154	17.418	18.687	300	17.295**	3.029	16.190	17.385	18.617
CFO	1256	-0.363	1.392	-0.461	0.038	0.185	956	-0.431	1.410	-0.594	0.021	0.169	300	-0.147***	1.313	-0.165	0.074***	0.218
LROA	1256	-0.339	0.813	-0.473	-0.031	0.065	956	-0.389	0.832	-0.570	-0.073	0.052	300	-0.180***	0.730	-0.126	0.012***	0.112

Panel B: Summary Statistics of Foreign IPOs and a Univariate Analysis Comparing Weak and Strong Home Institutions using Leuz's (2010) Classification

	Weak Home Institutions						Strong Home Institutions					
	N	**Mean**	**STD**	**Q1**	**Median**	**Q3**	**N**	**Mean**	**STD**	**Q1**	**Median**	**Q3**
ABNACC	131	0.036	0.418	-0.100	0.032	0.280	169	0.206**	0.847	-0.051	0.089*	0.340
MTB	131	0.295	0.594	0.016	0.060	0.200	169	0.258	0.475	0.035	0.098	0.264
HOME_ENF	131	26.435	10.483	16.000	28.000	37.000	169	28.006	10.727	18.000	24.000	38.000
SEC_ENF	131	0.027	0.017	0.018	0.027	0.027	169	0.008***	0.004	0.007	0.007***	0.008
PLIT	130	3.151	1.777	2.730	3.230	3.990	140	1.882***	0.666	1.790	2.100***	2.260
LITIG	131	0.221	0.417	0.000	0.000	0.000	169	0.174	0.388	0.000	0.000	0.000
AUD	131	0.916	0.278	1.000	1.000	1.000	169	0.796***	0.398	1.000	1.000***	1.000
SOX	131	0.405	0.493	0.000	0.000	1.000	169	0.144***	0.362	0.000	0.000***	0.000
LTA	131	18.654	1.856	17.301	18.210	19.654	169	17.326***	2.023	16.157	16.983***	18.334
LPROC	131	18.793	1.206	18.156	18.610	19.349	169	17.911***	1.256	17.148	17.906***	18.579
HiTECH	131	0.221	0.177	0.082	0.196	0.341	169	0.671**	0.189	0.015	0.127**	0.338
LEV	131	0.519	0.502	0.000	1.000	1.000	169	0.194	0.470	0.000	1.000***	1.000
LSALES	131	18.220	2.175	16.970	18.003	19.279	169	16.579***	3.389	15.833	17.000***	17.911
CFO	131	0.070	0.839	-0.076	0.098	0.258	169	-0.273**	1.568	-0.274	0.029***	0.207
LROA	131	-0.035	0.335	-0.039	0.027	0.116	169	-0.270***	0.912	-0.262	-0.003**	0.111

Notes: The table presents the descriptive statistics for the full sample as well as for distinguishing between domestic US IPOs and foreign IPOs. Panel A reports the descriptive statistics for the variables used in the main tests. Panel B reports the differences between IPOs from strong and weak home institutions within the foreign subsample. Strong is defined as above the median *INST* of the foreign subsample and Weak is all other observations. The results of tests for the differences in the means and medians (the latter using Wilcoxon rank-test) are reported under the Foreign IPOs block (in Panels A) and the Strong Home Institutions block (in Panel B). *, **, *** denote differences that are significant at the 10%, 5% and 1% levels, respectively. See the Appendix for variable definitions.

Table 3. Correlations Matrix

	ABNACC	*FOREIGN*	*INST*	*MTA*	*HOME_ENF*	*SEC_ENF*	*PLIT*	*AUD*	*SOX*	*LEV*	*LPROC*	*LSALES*	*CFO*	*LROA*	*LTA*	*LITIG*
FOREIGN	0.12															
INST	-0.02	-0.62														
MTA	-0.03	0.21	-0.15													
HOME_ENF	-0.07	-0.67	0.43	-0.12												
SEC_ENF	-0.12	-	-0.63	0.01	0.21											
PLIT	-0.09	-0.70	-0.43	-0.01	0.26	0.62										
AUD	0.08	0.14	-0.14	0.02	0.03	0.02	-0.07									
SOX	0.00	-0.09	-0.05	-0.01	0.60	0.11	0.18	-0.05								
LEV	-0.01	0.01	-0.04	0.01	-0.70	0.14	-0.05	-0.12	-0.05							
LPROC	0.00	0.14	-0.25	0.12	-0.13	0.28	0.13	-0.08	0.20	0.13						
LSALES	0.03	0.06	-0.12	-0.17	-0.13	0.23	0.04	-0.11	-0.01	0.20	0.33					
CFO	0.05	0.10	-0.11	-0.25	-0.04	0.07	0.07	-0.01	0.11	-0.03	0.15	0.38				
LROA	0.16	0.12	-0.13	-0.29	-0.10	0.15	0.06	-0.01	0.03	-0.03	0.16	0.40	0.75			
LTA	0.04	0.06	-0.19	-0.30	-0.08	0.21	0.05	-0.10	0.18	0.23	0.69	0.50	0.29	0.36		
LITIG	-0.01	-0.08	0.03	0.03	0.15	-0.01	0.06	0.05	0.13	-0.10	-0.06	-0.20	-0.07	-0.11	-0.05	
HiTECH	0.01	0.13	-0.03	0.12	-0.16	-0.20	0.01	0.00	-0.12	-0.12	0.00	0.05	-0.03	-0.04	-0.11	-0.15

Note: The table presents Pearson pair-wise correlations for selected variables. Correlations equal or above 0.12 and equal or below -0.12 are significant at the 5% level. Correlations for *SEC_ENF* and *PLIT* are calculated within the foreign IPO subsample. See the Appendix for variable definitions.

Table 4. Panel A - Enforcement Regression

Dependent variable:	***SEC_ENF***		***PLIT***	
	(1)	**(2)**	**(3)**	**(4)**
	By Firm	By Country	By Firm	By Country
CONSTANT	-0.005	-0.005	1.664***	0.104
	(0.615)	(0.510)	(0.002)	(0.901)
INST	**-0.018*****	**-0.013****	**-1.223*****	-0.874
	(0.000)	**(0.029)**	**(0.000)**	(0.133)
AGG_EM	**0.001*****	0.001	**0.037****	0.045
	(0.002)	(0.000)	**(0.011)**	(0.242)
GDP	**0.543****	**0.610****	**18.643*****	43.027
	(0.021)	**(0.029)**	**(0.000)**	(0.113)
N	300	28	270	26
R^2	0.537	0.303	0.197	0.187

Panel B – Signed Abnormal Accruals, SEC Enforcement, and Private Litigation

Dependent variable: ***ABNACC***	**SEC Enforcement Actions**			**Private Litigation**		
	(1)	(2)	(3)	(4)	(5)	(6)
	Foreign Sample	Strong Sample	Weak Sample	Foreign Sample	Strong Sample	Weak Sample
CONSTANT	0.871	1.125	-0.639	0.736	1.736	-0.766
	(0.141)	(0.278)	(0.262)	(0.356)	(0.202)	(0.145)
Main test variables						
SEC_ENF	**-3.572****	9.623	**-6.334***			
	(0.011)	(0.146)	**(0.057)**			
PLIT				**-0.031****	0.015	**-0.063***
				(0.024)	(0.719)	**(0.078)**
Variables capturing other sources of scrutiny						
LITIG	0.053	0.014	0.019	0.074	0.104	0.085
	(0.612)	(0.951)	(0.750)	(0.123)	(0.330)	(0.244)
AUD	**-0.147****	-0.146	**-0.154***	**-0.142****	-0.091	**-0.200****
	(0.034)	(0.215)	**(0.083)**	**(0.026)**	(0.590)	**(0.045)**
SOX	**-0.612*****	0.382	-0.173	-0.274	**0.407*****	0.113
	(0.010)	(0.145)	(0.444)	(0.147)	**(0.003)**	(0.703)
LTA	0.046	0.075	0.015	0.037	0.068	0.024
	(0.302)	(0.356)	(0.799)	(0.203)	(0.150)	(0.672)
Variables capturing incentives to inflate earnings						
LPROC	-0.037	-0.108	0.015	-0.068	-0.197	0.016
	(0.574)	(0.376)	(0.743)	(0.378)	(0.155)	(0.692)
HiTECH	**-0.181***	-0.092	**-0.414*****	**-0.159****	-0.095	**-0.370*****
	(0.058)	(0.528)	**(0.005)**	**(0.025)**	(0.536)	**(0.000)**
LEV	0.063	0.121	-0.191	**-0.179***	-0.126	-0.359
	(0.663)	(0.674)	(0.598)	**(0.086)**	(0.583)	(0.320)
Other control variables						
LSALES	-0.022	-0.031	0.038	0.010	0.041	0.025
	(0.593)	(0.607)	(0.512)	(0.525)	(0.177)	(0.669)
CFO	-0.036	0.036	-0.135	-0.045	0.028	-0.128
	(0.339)	(0.499)	(0.155)	(0.326)	(0.645)	(0.136)
LROA	-0.149	-0.289	**0.262****	-0.158	-0.339	**0.239****
	(0.334)	(0.249)	**(0.029)**	(0.322)	(0.138)	**(0.024)**
Year and industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	300	169	131	270	140	130
Adj R^2	0.040	0.011	0.144	0.037	0.001	0.141

Notes: The table presents results of the regression models of SEC enforcement and private litigation. Panel A presents the estimation results for models 3a and 3b, i.e., SEC enforcement and private litigation, respectively. Columns 1 and 3 include all 300 foreign IPOs and columns 2 and 4 are at the country level. Panel B presents results of the regression models of signed abnormal accruals with the variables of interest being SEC enforcement (*SEC_ENF*) and private litigation (*PLIT*) in columns (1)-(3) and columns (4)-(6), respectively. Column (1) and (4) present regression results for model 3 for the whole sample of foreign firms. Columns (2) and (5) present regression for model 3 for IPOs from strong institutions while columns (3) and (6) present regression for model 3 for IPOs from weak institutions while columns (3) and (6). *p*-values, corrected for based on standard errors corrected for heteroskedasticity and clustering at the industry level are reported in parentheses below the coefficient estimates. *,**,*** indicate significance at the two-tailed 10%, 5% and 1% levels, respectively. See the Appendix for variable definitions.

Table 5. Signed Abnormal Accruals, IPO Foreignness, and Home Institutions

Dependent variable: ***ABNACC***

	(1) Foreign Sample	(2) Full Sample	(3) Full Sample	(4) Strong + US	(5) Weak + US
CONSTANT	0.647	0.043	-0.101	-0.003	-0.448
	(0.219)	(0.866)	(0.684)	(0.993)	(0.141)
Main test variables					
FOREIGN		**0.181****	0.030	**0.285*****	-0.014
		(0.035)	(0.547)	**(0.009)**	(0.732)
FOREIGN_STRONG_INST			**0.260*** **		
			(0.000)		
INST	**0.102****				
	(0.039)				
Variables capturing other sources of scrutiny					
LITIG	0.031	-0.009	-0.006	-0.008	0.016
	(0.763)	(0.902)	(0.925)	(0.913)	(0.826)
AUD	**-0.137***	**0.103****	**0.119****	**0.117****	**0.148*****
	(0.065)	**(0.035)**	**(0.021)**	**(0.019)**	**(0.003)**
SOX	**-0.518****	-0.048	-0.145	**0.175****	-0.072
	(0.026)	(0.675)	(0.116)	**(0.041)**	(0.497)
LTA	0.055	0.015	0.019	0.011	**0.034****
	(0.256)	(0.304)	(0.218)	(0.503)	**(0.032)**
Variables capturing incentives to inflate earnings					
LPROC	-0.042	-0.030	-0.019	-0.018	-0.019
	(0.496)	(0.344)	(0.511)	(0.609)	(0.474)
HiTECH	**-0.217***	0.031	0.028	0.044	0.005
	(0.056)	(0.707)	(0.709)	(0.524)	(0.951)
LEV	0.002	0.056	0.064	0.043	-0.062
	(0.992)	(0.481)	(0.437)	(0.506)	(0.410)
Other control variables					
LSALES	-0.022	-0.002	-0.001	-0.001	0.001
	(0.585)	(0.772)	(0.847)	(0.863)	(0.763)
CFO	-0.044	**-0.079****	**-0.081****	**-0.078****	**-0.095****
	(0.250)	**(0.026)**	**(0.024)**	**(0.036)**	**(0.013)**
LROA	-0.179	**0.221****	**0.222****	**0.222****	**0.300*****
	(0.296)	**(0.024)**	**(0.021)**	**(0.023)**	**(0.000)**
Year and industry FE	Yes	Yes	YES	Yes	Yes
N	300	1256	1256	1123	1089
Adj R^2	0.036	0.040	0.048	0.042	0.092

Notes: The table presents results of the regression models of signed abnormal accruals. Column (1) present regression results for model 3 for the sample of foreign firms with the inclusion of the variable *INST*. Column (2) presents regression for model 3 for the whole sample with the inclusion of the variable *FOREIGN*. Columns (3) and (4) present regression for model 3 for the sample of US IPOs and foreign IPOs from strong or weak institutions with the inclusion of the variable *FOREIGN*, respectively. *p*-values, corrected for based on standard errors corrected for heteroskedasticity and clustering at the industry level are reported in parentheses below the coefficient estimates. *,**,*** indicate significance at the two tailed 10%, 5% and 1% levels, respectively. See the Appendix for variable definitions.

Table 6. Self-Selection Regression

Panel A: Probit Regression

Dependent variable:	**Probability of US Listing**	**Probability of US Listing**	**Probability of US Listing**	**Probability of US Listing**	**Probability of US Listing**
	(1)	(2)	(3)	(4)	(5)
CONSTANT	**-3.969*****	**-6.555*****	**-5.66*****	**-6.918*****	**-7.033*****
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
LTA	**0.096*****	**0.097*****	**0.84*****	**0.094*****	**0.097*****
	(0.001)	**(0.001)**	**(0.005)**	**(0.000)**	**(0.000)**
LPROC	**0.194*****	**0.207*****	**0.220*****	**0.221*****	**0.223*****
	(0.000)	**(0.001)**	**(0.000)**	**(0.000)**	**(0.000)**
AGG_EM	0.004	**0.037*****	**0.147***	**0.040*****	**0.039*****
	(0.504)	**(0.000)**	**(0.051)**	**(0.000)**	**(0.000)**
HOME_ENF	**0.039*****				0.005
	(0.000)				(0.435)
SEC_ENF		**0.097*****		**0.095*****	**0.086*****
		(0.000)		**(0.000)**	**(0.000)**
PLIT			0.021	-0.011	-0.123
			(0.446)	(0.699)	(0.655)
HiTECH	**0.407*****	**0.463*****	**0.464*****	**0.486*****	**0.486*****
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
GDP	**-46.588*****	**-39.601*****	**-38.748*****	**-37.236*****	**-38.750*****
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
N	1696	1696	1564	1564	1564
Pseudo R^2	0.327	0.354	0.325	0.344	0.344

Panel B -Signed Abnormal Accruals, *INST*, and Inverse Mills Ratio

Dependent variable:	***ABNACC***	***ABNACC***	***ABNACC***	***ABNACC***	***ABNACC***
	(1)	(2)	(3)	(4)	(5)
CONSTANT	**0.707****	0.663	0.368	0.501	0.492
	(0.047)	(0.152)	(0.578)	0.486	(0.480)
Main test variables					
INST	**0.105***	**0.103***	**0.135***	**0.147****	**0.146***
	(0.075)	**(0.070)**	**(0.089)**	**(0.047)**	**(0.051)**
IMR	-0.018	-0.009	0.023	-0.037	-0.290
	(0.845)	(0.890)	(0817)	(0.574)	(0.664)
Controls	Yes	Yes	Yes	Yes	Yes
Year and industry FE	Yes	Yes	Yes	Yes	Yes
N	300	296	266	266	266
Adj R^2	0.036	0.033	0.035	0.035	0.034

Notes: The table presents results of the regression models of signed abnormal accruals using a Heckman two-stage selection model to address potential selection bias concerns. Panel A presents the binary probit estimation results for US listing (IPOs in the US are assigned the value 1 while IPOs conducted in a foreign country are assigned 0). Columns (1)-(3) present the results with the inclusion of home enforcement measure (*HOME_ENF*), SEC enforcement (*SEC_ENF*) and private litigation (*PLIT*), respectively. Column (4) presents the results with the inclusion of both enforcement (*SEC_ENF*) and private litigation (*PLIT*). Column (5) presents the results with the inclusion of home enforcement measure (*HOME_ENF*), SEC enforcement (*SEC_ENF*) and private litigation (*PLIT*) together. Panel B presents results of the regression models of signed abnormal accruals with the inclusion of the mills ratio estimated in step 1 (Panel A). Columns (1) – (5) are in accordance to Panel A. Control variables are not reported in Panel B for brevity. *p*-values, corrected for based on standard errors corrected for heteroskedasticity and clustering at the industry level are reported in parentheses below the coefficient estimates. *,**,*** indicate significance at the two-tailed 10%, 5% and 1% levels, respectively. See the Appendix for variable definitions.

Table 7. Analysis of IPO Market Values

Dependent variable: ***MTA***	(1)	(2)	(3)	(4)
	Foreign Sample	Full Sample	Strong + US	Weak + US
CONSTANT	**2.151*****	**1.047*****	**0.890*****	**1.155*****
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**
Main test variables				
ABNACC	-0.033	-0.012	-0.002	-0.001
	(0.459)	(0.407)	(0.905)	(0.956)
FOREIGN		**0.205*****	**0.128*****	**0.318*****
		(0.000)	**(0.000)**	**(0.000)**
INST	**-0.182*****			
	(0.008)			
Control variables				
LITIG	**0.266*****	**0.049***	0.004	0.037
	(0.006)	**(0.054)**	(0.848)	(0.103)
AUD	**0.202*****	**0.094*****	**0.055*****	**0.071*****
	(0.001)	**(0.000)**	**(0.009)**	**(0.001)**
SOX	-0.124	**-0.147*****	0.040	-0.057
	(0.551)	**(0.002)**	(0.576)	(0.215)
LTA	**-0.145*****	**-0.087*****	**-0.068*****	**-0.095*****
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**
HiTECH	**0.348*****	0.045	0.003	0.013
	(0.008)	(0.181)	(0.913)	(0.720)
LEV	0.128	**0.148***	**0.134***	0.112
	(0.518)	**(0.050)**	**(0.055)**	(0.120)
LSALES	0.015	0.002	-0.002	0.000
	(0.180)	(0.572)	(0.475)	(0.956)
CFO	-0.057	-0.008	-0.000	0.003
	(0.287)	(0.658)	(0.981)	(0.844)
LROA	-0.078	**-0.055****	**-0.069*****	**-0.051***
	(0.211)	**(0.043)**	**(0.009)**	**(0.068)**
Year and industry FE	Yes	Yes	Yes	Yes
N	300	1042	909	875
Adj R^2	0.263	0.260	0.295	0.298

Notes: The table presents results of the regression models of market value of the firm in the first day of listing divided by total assets (*MTA*) on signed abnormal accruals, foreignness and home institutions. Column (1) present regression results for model 3 for the sample of foreign firms. Column (2) presents regression for model 3 for the whole sample without and with the inclusion of the variable *INST*. Columns (3) and (4) present regression for model 3 for the sample of US IPOs and foreign IPOs from strong or weak institutions, respectively. See the Appendix for variable definitions. *p*-values appear below the estimated coefficients. *,**,*** indicate significance at the two-tailed 10%, 5% and 1% levels, respectively.

Appendix: Variable Definitions

Variable	Definition	Source
ABNACC	Abnormal accruals calculated according to Ball, Robin, & Sadka (2008) (see Eq. 1 in the text).	COMPUSTAT, IPO Prospectus
INST	An indicator variable that is set equal to 1 if the IPO firm comes from a country that is classified by Leuz (2010) as belonging to the first cluster (i.e., regarded as having the strongest institutions); zero otherwise.	Leuz (2010)
FOREIGN	An indicator variable that is set equal to 1 if the IPO firm is domiciled outside of the US; 0 otherwise.	IPO Prospectus
MTA	Market value of the IPO firm at the first day of trading over total assets. Calculated by the offer price multiplied by the number of shares outstanding after the IPO over total asset. It is further divided by 100.	COMPUSTAT, IPO Prospectus
LITIG	An indicator variable that is set equal to 1 if the firm operates in a high-litigation industry and 0 otherwise where high litigation industries are industries with SIC codes of 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370-7374 as defined in Ashbaugh et al. (2003).	SDC Platinum and CRSP
AUD	An indicator variable that is set equal to 1 if the auditing firm is a Big-6, Big-5 or Big-4 in 1990-1997, 1998-2001 and 2002 onwards, respectively; 0 otherwise.	IPO Prospectus, SDC Platinum
SOX	An indicator variable that is set equal to 1 if the foreign IPO takes place on or after July 2002; 0 otherwise.	
LTA	Natural logarithm of total assets at the end of fiscal year preceding the IPO. The value of total assets is indexed to the 2005 value of US dollars.	IPO Prospectus, COMPUSTAT
LPROC	Natural logarithm of 1 plus total proceeds of the offering, where the proceeds are indexed to the 2005 value of US dollars.	IPO Prospectus, SDC Platinum
HiTECH	An indicator variable that is set equal to 1 if the firm operates in a hi-tech industry and 0 otherwise, as defined by SDC Platinum and Thomson Reuters	IPO Prospectus, SDC Platinum, COMPUS.TAT
LEV	Natural logarithm of the ratio of short and long-term debt over total assets.	IPO Prospectus, COMPUSTAT
LSALES	Natural logarithm of sales at the end of fiscal year preceding the IPO. The sales variable is first indexed to the 2005 value of US dollars.	IPO Prospectus, SDC Platinum, COMPUSTAT
CFO	The ratio of cash from operating activities over total assets.	IPO Prospectus, COMPUSTAT
LROA	The lagged return on assets measured at the end of fiscal year preceding the IPO.	IPO Prospectus, COMPUSTAT
AGG_EM	The country-level aggregated earnings management measure as calculated by Boulton et al. (2011)	Boulton et al. (2011)
SEC_ENF	The percent of firm-years with SEC enforcement by the country of origin of foreign IPOs as reported in Silvers (2016).	Silvers (2016)
HOME_ENF	A country-specific index that scores enforcement of compliance with each country's accounting standards as measured and presented in Brown, et al. (2014).	Brown, et al. (2014)
PLIT	The percent of firm-years with lawsuits by the country of origin of foreign IPOs as reported in A measure of private litigation as reported in Cheng, et al. (2014).	Cheng et al. (2014)